

# Andrew Philip Freiburger

**LinkedIn:** Andrew Freiburger

## EDUCATION

- University of Victoria Victoria, BC, CAN January 2020 – April 2022  
**GPA:** 8.0 / 9.0 (4.0 / 4.0 eqv.) **Degree:** M.A.Sc.; Civil Engineering Major
- Grand Valley State University Allendale, MI, USA August 2016 – April 2019  
**GPA:** 3.6 / 4.0 **Degree:** B.S. (honors); Chem. major, Bio. minor, Green Chem. certificate
- Grand Rapids Community College Grand Rapids, MI, USA May 2022 – Present  
**GPA:** 3.8 / 4.0 **Degree:** A.A.A.S.; Computer Programming
- Grand Rapids Community College Grand Rapids, MI, USA August 2015 – August 2016  
**GPA:** 3.8 / 4.0 **Degree:** A.S. (honors)
- East Grand Rapids High School East Grand Rapids, MI, USA September 2011 – May 2015  
**GPA:** 3.7 / 4.0; 4.22 weighted **Degree:** Diploma (honors)

## RESEARCH

- Argonne National Lab, Christopher Henry's Group June 2021 – Present
- **Computational Biologist** (primarily metabolic models) for [KBase](#) and other SFAs.
- Mount Sinai School of Medicine, Jonathan Karr's Lab December 2020 – April 2022
- **Data scientist** and bioinformatician for [Biosimulators.org](#) and [Biosimulations.org](#)
- University of Victoria, Heather Buckley's Group January 2020 – April 2022
- **Software engineer** of chemical systems: bacterial biochemistry and desalination geochemistry
- Lawrence Berkeley National Lab, Reactive Transport Group June 2020 – October 2020
- **Software engineer** of physical transport and geochemical reactions during desalination
- North Carolina State University, Lucian Lucia's Group May 2019 – December 2019
- **Spectroscopic metabolomics** of *Cannabis* – w/ Shaw Univ. and a startup GenoVerde Biosciences
- Washington State University, Michael Wolcott's Group May 2018 – August 2018
- **NSF-funded REU** program & developed photocatalyzed oxygen-scavenging cellulosic materials
- Grand Valley State University, Dalila Kovacs' Group October 2016 – June 2019
- **Analytical chemist** of willow metabolomics to identify applications as an alternative feedstock.

## EXPERIENCE

- Assistant Webmaster, ACS Division of Organic Chemistry June 2020 – Present
- Maintainer of [www.organicdivision.org](http://www.organicdivision.org) and [www.organicchemistrydata.org](http://www.organicchemistrydata.org)

## Instructor

- University of Victoria May 2021 – August 2021
  - CIVE 210 Sustainable Design

## Teacher's Assistant

- University of Victoria January 2020 – April 2021
  - ECE 340 Applied Photonics and Electromagnetism
  - CIVE 345 Fluid Mechanics
  - CIVE 210 Sustainable Design
  - CHEM 150 and 102 laboratories
- Grand Valley State University August 2018 – December 2018
  - CHM 109 discussion section

## Tutor

- Shaw University September 2019 – November 2019
  - Organic Chemistry
- Grand Valley State University August 2017 – April 2019
  - College Reading & Learning Association **certified tutor** of general and Organic Chemistries
- High School Tutor February 2017 – November 2020
  - Chemistry, Physics, Biology, Mathematics, and Writing

## Freelance Science Writer

- December 2019 – March 2021
  - *Canadian Vegan* magazine (sampled here <https://thesustainablevegan.org/reviews/>)

## Fresh Thyme Farmer's Market Dairy Associate

- May – August 2016
  - Independently operated the dairy department

## Sports and Recreation

- East Grand Rapids Recreation Department
  - Elementary school "Safety Town" Program June 2014 – August 2014
  - Soccer and Basketball scorekeeper and referee August 2011 – August 2016
- Southern Little League Baseball Umpire June 2010 – August 2010

COMPUTER SKILLS Python (Pandas, Numpy, COBRA, Optlang, Jupyter), Java, C++, HTML & CSS, Git & GitHub, PHREEQ(C/Py), Julia, linux, command prompt, Microsoft office, WordPress

INSTRUMENTS <sup>1</sup>H NMR, <sup>13</sup>C NMR, 2D-NMR, GC-MS, GC-FID, HPLC, UV-Vis, FTIR, ICPMS, Bomb Calorimeter, Lyophilizer, Muffle Furnace, Biological Safety Cabinet

TECHNIQUES Matrix casting, Soxhlet Extraction, Steam Distillation, Ball milling, Dual Asymmetric Centrifugation, Plant Cloning, Risk Group II Bacterial Culturing

## PRESENTATIONS **Oral** (20-minute) Presentations

- ACS Spring National Conference (virtual) March 2022
- PacifiChem (virtual) December 2021

- (2 talks) ACS Spring National Conference (virtual) April 2021
- Central Canadian Association on Water Quality (56<sup>th</sup>) (virtual) March 2021
- ACS Green Chemistry and Engineering (23<sup>rd</sup>) (VA) June 2019
- GVSU Student Scholar's Day (MI) April 2019

#### **Lightning Talks (3-minute)**

- LBNL Molecular Foundry User Meeting (virtual) August 2020
- ACS Fall National Conference (260<sup>th</sup>) (virtual) August 2020
- ACS Green Chemistry and Engineering (24<sup>th</sup>) (virtual) June 2020

#### **Poster Presentations**

- AIChE National Conference (AZ) November 2022
- ACS Fall National Conference (IL) August 2022
- ACS Spring National Conference (virtual) March 2022
- Central Canadian Association on Water Quality (55<sup>th</sup>) (virtual) July 2020
- Michigan Forest Bioeconomy conference (2<sup>nd</sup>) (MI) February 2019
- Center for Undergraduate Research REU symposium (VA) October 2018
- Washington State University Summer research symposium (WA) August 2018
- ACS Green Chemistry and Engineering (22<sup>nd</sup>) (OR) June 2018
- GVSU Student Scholar's Day (22<sup>nd</sup>) (MI) April 2018

\* A complete list & citations are provided on my website (<http://thesustainablevegan.org/conferences/>)

#### **ACCOLADES**

ACS ChemLuminary Awardee	August 2022
NSF Innovation Corps (i-corps) Bay Area graduate	June 2020
ACS Division of Organic Chemistry Undergraduate Award	April 2019
Grand Valley State University Honor's college	Fall 2016 – April 2019
Grand Rapids Community College Honor's college	Fall 2015 – April 2019
Grand Valley State University Sustainability Award	April 2019
(4x) Dean's List	Fall 2015 – Winter 2019
President's List	1 Semester
6 <sup>th</sup> in National "We the People", Center for Civic Ed., competition	Winter 2014
Michigan Youth Leadership school representative	June 2013
1 <sup>st</sup> Chair Trumpet in Concert Band	2012 – 2013
Summa Cum Laude	Fall 2011 – Spring 2015

#### **SCHOLARSHIPS**

ACS GEOC Student Travel Award	April 2021
(3x) University of Victoria Graduate Award	W., Spr., Sum. 2020
Purdue University Graduate School Expo travel scholarship	September 2019
Academic and Professional Enrichment Fund award	June 2018, 2019
Great Finish Grand Scholarship	Fall 2018

#### **OUTREACH**

SLAC Science Accelerating Girls' Engagement in STEM (SAGE-S) camp	August 2020
GVSU Networks of Support K-12 Tutoring	June 2020 – August 2020
LBNL "Homework Help Volunteers" K-12 Education	April 2020 – May 2020
British Columbia Virtual Science Fair judge and Mentor	June 2020
Oakland Science and Engineering Fair judge and Mentor	May 2020

Article reviewer for the journal of Wood and Fiber Science	September 2019
Organic chemistry laboratory teaching assistant at Shaw University	September 2019
Science Olympiad competition volunteer	March 2019
“Fall in love with STEM” Valentine’s day elementary student volunteer	February 2019
ACS “Chemistry at the Mall” demonstrations	October 2017, 2018
Guest lecturer for a 100-level chemistry class	October 2017

## PERSONAL

Chinese Martial Artist	August 2015 – Present
Volunteer chemist for the OpenAir Collective DACC initiative	July 2020 – August 2021
Photography model	August 2017 – August 2020
Band leader and gig musician	January 2018 – July 2020
3 <sup>rd</sup> degree Knight of Columbus	October 2018
Groundswell and Green Wagon Organic Farm volunteer	Summers 2015, 2016
“Hearts of Gold” charity student representative and public communicator	October 2012 – April 2015
Michigan Youth Leadership (MYLead) camp counselor	June 2014
100 hours as a “Safety Town” camp counselor	Summer 2013
Monthly Church volunteer	2009 – 2013

## REFERENCES

Heather Buckley, Assistant Professor, Department of Civil Engineering, UVic  
 – Research mentor (December 2019 – Present) [hbuckley@uvic.ca](mailto:hbuckley@uvic.ca)

James Krikke, Professor, Department of Chemistry, GVSU  
 – Research mentor (December 2016 – June 2019) [krikkeji@gvsu.edu](mailto:krikkeji@gvsu.edu)

Dalila Kovacs, Professor, Department of Chemistry, GVSU  
 – Research mentor (December 2016 – June 2019) [kovacsd@gvsu.edu](mailto:kovacsd@gvsu.edu)

Mohammadali Azadfar, Assistant Professor, Division of Environmental and Renewable Resources, SUNY  
 – Research mentor (May 2018 – August 2018) [azadfam@morrisville.edu](mailto:azadfam@morrisville.edu)

Lucian Lucia, Associate Professor, Department of Forest Biomaterials, NCSU  
 – Research mentor (May 2019 – December 2019) [lalucia@ncsu.edu](mailto:lalucia@ncsu.edu)

## PUBLICATIONS

“BioSimulators: a central registry of simulation engines and services for recommending specific tools”. *Nucleic Acids Research*. **2022**. <https://doi.org/10.1093/nar/gkac331>.

“Hemp is the 21st century Tobacco: A Review”. *ACS Journal of Agricultural Science and Technology*. **2021**. <https://doi.org/10.1021/acsagascitech.1c00114>

\*A complete list is provided on my website <https://thesustainablevegan.org/publications/> \*